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ENVIRONMENTAL

Subject:

**Ringwood Mines/Landfill Site
Revised Request for Completion of Excavation Activities within SR-14**

Dear Mr. Gowers:

Date:
March 07, 2013

ARCADIS U.S. Inc. (ARCADIS), on behalf of the Ford Motor Company (Ford), is submitting this technical memorandum on the surficial paint sludge removal activities in SR-14 at the Ringwood Mines/Landfill Site, Ringwood, New Jersey. This document has been revised in accordance with the conditional approval issued by the United States Environmental Protection Agency (USEPA) dated February 14, 2013.

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Background

Paint sludge was observed by the USEPA Removal Branch during confirmatory test pitting activities conducted within an area of reworked fill materials located adjacent to the Ringwood Department of Public Works Garage on Margaret King Avenue. The test pits were being excavated by the USEPA to confirm the efficacy of removal efforts conducted by New Jersey Department of Environmental Protection (NJDEP) during a 2005 Interim Action. After USEPA identified paint sludge remained, the area was identified as sludge removal area SR-14. Removal efforts were conducted during the period from September 13, 2012 through October 16, 2012. Approximately 150 tons of impacted fill material with intermingled pieces of paint sludge were removed from this location, and stockpiled for waste characterization and subsequent offsite disposal.

Our ref:
NJ000604

Results of Excavation and Confirmatory Sampling – Round 1

Side wall post-excavation samples were collected on September 14, 2012 for VOCs, SVOCs, Metals, and PCBs at a frequency of approximately one (1) sample for every 30 linear feet of excavation side wall, with a minimum of one side wall sample per

Imagine the result

excavation side wall. Post-excavation bottom samples were collected for the same parameters at a frequency of approximately one (1) sample for every 900 square feet of excavation bottom area, with a minimum of four base samples collected. Post-excavation sample locations were biased to locations and intervals expected to have the highest potential for impact based on field observations.

A total of four (4) base and four (4) side wall samples were collected during the first round of post-excavation activities. Post-excavation sample analytical results are summarized in Table 1 and post-excavation sample locations are shown on Figure 1.

Volatile Organics

No volatile organic compounds were reported at concentrations greater than the NJDEP default Impact to Groundwater (IG) screening criteria in any of the post-excavation samples obtained from SR-14.

Semivolatile Organics

Benzo(a)pyrene was identified in sample SR-14-PE-4SW (3-3.5) at a concentration of 0.423 mg/kg, which is above its IG screening criterion of 0.2 mg/kg. The concentration was also above the NJDEP Residential Direct Contact Soil Standard (RDCSS) of 0.2 mg/kg.

No pesticides/herbicides or polychlorinated bi-phenyls (PCBs) were reported at concentrations greater than the NJDEP default Impact to Groundwater (IG) screening criteria in any of the post-excavation samples obtained from SR-14.

Metals

The metals aluminum, beryllium, lead, and manganese were detected in post-excavation samples at concentrations greater than their respective IG screening criteria.

- Aluminum was reported at concentrations above its IG screening level of 3,900 mg/kg in all post-excavation samples, with concentrations ranging from 7,550 mg/kg to 14,000 mg/kg;
- Beryllium concentrations at each of the four base sampling locations were slightly exceeded the IG screening level of 0.5 mg/kg, with concentrations ranging from 0.51 mg/kg to 0.67 mg/kg;

- Lead concentrations in three of the four base samples and in one side wall sample slightly exceeded the IG screening level of 59 mg/kg, with concentrations ranging from 62.1 mg/kg to 82.7 mg/kg; and
- Manganese was reported in each of the nine post excavation samples at concentrations above its IG screening level of 42 mg/kg. Concentrations ranged from 241 mg/kg to 486 mg/kg.

Concentrations of aluminum and manganese are consistent with those found within clays, and are consistent with the concentrations detected during final post-excavation sampling and background soil sampling conducted across the site. Beryllium concentrations identified within SR-14 are consistent with concentrations detected during post-excavation and background soil sampling conducted previously at the Ringwood Site. In addition, none of the beryllium concentrations detected within these post-excavation samples exceeded the Overall Highlands Mean Concentration of 0.73 mg/kg detected within rural Highlands area soils during a 2002 study sponsored by the NJDEP¹. No further action was requested with respect to aluminum, manganese, and beryllium.

Results of Excavation and Confirmatory Sampling – Round 2

A subsequent round of excavation activities was performed on October 4, 2012 to remove additional fill materials from locations where benzo(a)pyrene and lead were identified at concentrations above their respective IG screening criteria. Continuous screening of soils was conducted during excavation activities with a photoionization detector (PID) to confirm that the fill materials did not contain volatile organic compounds at elevated concentrations.

Three base samples and two side-wall samples were taken subsequent to the second round of excavation and analyzed for constituents detected during the first round. Results of the second round of excavation activities are outlined below, and summarized in Table 1. Sample locations are shown on Figure 1.

¹ BEM Systems, Inc. Characterization of Ambient Levels of Selected Metals and cPAHs in New Jersey Soils: Year III – Rural Areas of New Jersey Highlands, Valley and Ridge, and Coastal Plain Physiographic Provinces. March 2002.

Semi-volatile Organic Compounds

No semi-volatile organic compounds were reported in any of the post-excavation samples obtained during second-round excavation activities within SR-14 at concentrations above their respective IG screening criteria.

Metals

Lead was reported in samples SR-14-PE-1SW(2)(4.0-4.5) and SR-14-PE-4BS(2)(4.5-5.0) at concentrations of 88.5 mg/kg and 253 mg/kg, respectively, which are above its IG screening criterion of 59 mg/kg. Results of post-excavation sampling are provided in Table 1.

Results of Excavation and Confirmatory Sampling – Round 3

A third round of excavation activities was performed on October 16, 2012 to remove additional fill materials from the base and sidewall locations where lead had been identified during the previous round. Post excavation samples were subsequently obtained from these locations to confirm the completeness of removal activities. Results of this sampling indicated that lead was not present at either location at a concentration above its IG screening criteria.

Conclusions

Based on the results of post-excavation sampling, constituents in remaining soils do not exceed their respective NJDEP RDCSS and ARCADIS requests approval to restore this area in compliance with NJDEP mitigation requirements.

Please feel free to contact me if you have any questions or require additional information.

Sincerely,

ARCADIS US, Inc



Erich Zimmerman, PE
Project Manager

Copies:

Brian Bussa – Ford
Tim Green – Ford
Eric Pain – Ringwood State Park
Scott Heck – Ringwood Borough